

## CLAIMS

1. A honeycomb structure body comprising:

a plurality of honeycomb segments each having an outer wall, partition walls disposed in the outer wall, and a plurality of cells separated from each other by the partition walls and extending in an axial direction,

a bonding layer interposed between the plurality of honeycomb segments to unitarily bond the honeycomb segments,

10 and

an intermediate layer interposed between the bonding layer and the honeycomb segments;

wherein pores having a diameter of 0.5  $\mu\text{m}$  or more of the intermediate layer occupies 25% by volume or less of 15 the whole volume of the intermediate layer.

2. A honeycomb structure according to Claim 1, wherein the intermediate layer contains 20% by mass of inorganic oxide.

3. A honeycomb structure according to Claim 1 or 2, 20 wherein the intermediate layer contains a vitreous phase.

4. A honeycomb structure according to Claim 3, wherein chemical components of the vitreous phase include one or more kinds of alumina, silica, sodium, and potassium.

5. A honeycomb structure body according to any one of 25 Claims 1 to 4, wherein predetermined cells are plugged.

6. A honeycomb structure body according to any one of Claims 1 to 5, wherein a catalyst is carried.

7. A method for manufacturing a honeycomb structure body by unitarily bonding, a plurality of honeycomb segments

each having an outer wall, partition walls disposed in the outer wall, and a plurality of cells separated from each other by the partition walls and extending in an axial direction,

5       wherein the method includes a step of disposing an intermediate layer material on the outer walls of the honeycomb segments, a step of disposing a bonding material between the honeycomb segments to unitarily bond the honeycomb segments, and a step of thermally treating the  
10      unitarily bonded honeycomb segments at 200 to 1200°C.

8.       A method for manufacturing a honeycomb structure body according to Claim 7, wherein an intermediate layer having pores having a diameter of 0.5  $\mu\text{m}$  or more occupying 25% by volume or less of the whole volume of the intermediate  
15      layer is formed.